

Letter from Alexander Graham Bell to Alexander Melville Bell, Eliza Symonds Bell, Carrie Bell, Charles Bell, May 6, 1874, with transcript

Boston to Salem. May 6th, 1874. Dear P. M. C. & Ch.

My last letter to you was Salem to Boston — so I take advantage of the return trip to finish my subject. Let me see. Where was I? I was just telling you of the style which was made so thin that it divided into nodes like a string. When a vowel such as was sounded, the vibrating end, instead of presenting the usual appearance of two boundary lines (a & b) and a shadowy space between them showed three well defined lines a b & c the centre line being close to the upper line. On uttering the vowels without any break in the voice the centre line descended until it almost co-incided with the lower one. When the vowel was uttered four well-defined lines made their appearance. gave a multitude of fine lines interspersed by shadowy spaces. In fact there seemed to be a difference in the form of the vibration for each sound.

On Monday I went to the Institute of Technology and showed these results to Prof. Cross and he was much interested. I asked him whether a silk thread, set 2 in vibration by the membrane might not produce similar results on a magnified. He thought it might — and he is to experiment & let me know the result.

By throwing a bright light, through a narrow slit, upon the vibrating style the form of the vibration is beautifully brought out.

Suppose it vibrates in a circle a little ring of bright light appears in the air etc. The sun was just setting when I was at the Institute but we tried the effect upon the style. When was

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sounded and the vibrating style held before the slit a brilliant line of light of the shape of an 8 made it appearance. Some of the forms observed to come and go are represented here.

We shall try this experiment on Saturday morning with a silk thread.

Last Saturday week I experimented all day long in my study. I shut two or three doors to cut off all sounds from the lower regions. Unfortunately I cut off also the heat from down stairs, and so managed to get into the doctor's hands with a bad cold.

On Wednesday I attended a reception at Prof. Monroe's house — and increased my cold so much that I awoke in the middle of the night with such an oppression on the lungs that I felt unable to breathe. I was so nearly suffocated that I had to arouse Mrs. Sanders and get assistance. The doctor thought it was inflammation of the mucous membrane, and kept me in bed for a couple of days. I felt somewhat alarmed as this is the first time I have had any marked trouble with my lungs. But the doctor has examined my chest and finds it all right — and I am happy to say it has all passed off safely and I can now again report a clean bill of health.

With much love Aleck. Prof. A. Graham Bell, Brantford, Ont., Canada. Note: Original in pencil.